

## DC Inverter Wall Mounted

Models: MWMX 010FR  
MWMX 015FR



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**Note :** Installation and maintenance are to be performed only by qualified personnel who are familiar with local codes and regulations, and experienced with this type of equipment.

**Caution:** Sharp edges and coil surfaces are a potential injury hazard. Avoid contact with them.

**Warning :** Moving machinery and electrical power hazard. May cause severe personal injury or death. Disconnect and lock off power before servicing equipment.

This book supersedes MWMX-2004

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# Features

- **Energy Saving**

Total energy saved can be as high as 30% compared to the conventionally controlled units.

- **Efficient**

McQuay DC Inverter series achieve excellent efficient with high EER & COP rating.

- **Comfortable**

Users enjoy better comfort and quietness with inverter technology. When the environmental factors, such as temperature, humidity, airflow and / or outside ambient conditions, are obtained and processed through a control algorithm, the compressor motor speed can be varied to optimize the cooling power to create a more precisely controlled room temperature (i.e. less temperature fluctuation).

- **\*R410A Refrigerant (New)**

Introducing the new type of refrigerant - R410A which is environmental friendly with zero Ozone Depletion Potential (ODP=0). R410A also provide the higher volumetric capacity and better refrigerating effect per unit of volume.

- **Advance Technology**

The traditional conventional air conditioners repeat “the start” and “the stop” during the thermostat cycle off and cause the unstable of room temperature. Incorporating fuzzy logic control into the McQuay Inverter design enables greater flexibility in handling the system control.

This result in :

- Powerful, efficient and economical operation.
- Even room temperature control.
- Constant and quiet compressor operation.
- Enhanced system reliability and reduced maintenance costs.

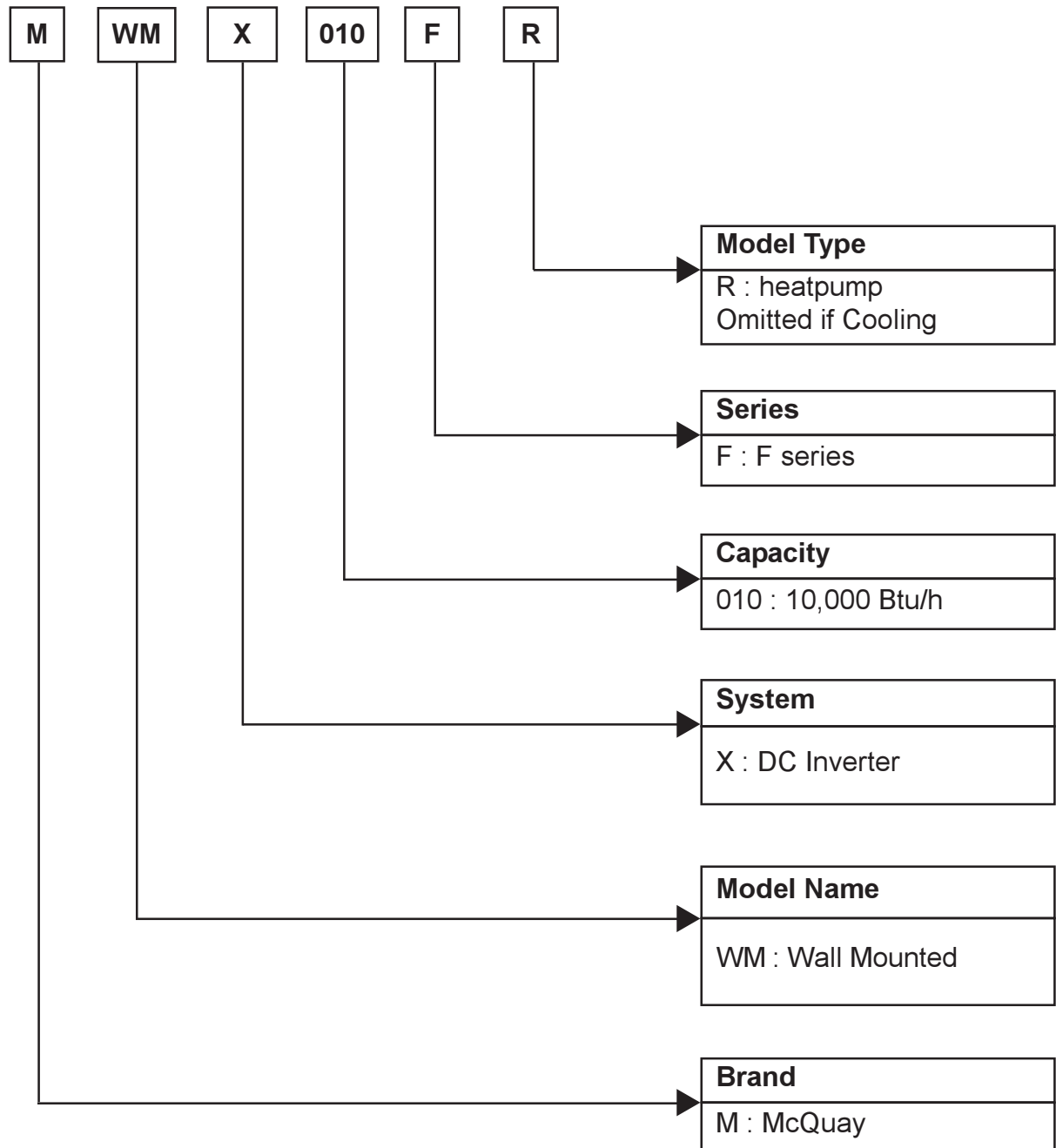
- **Self Diagnostic**

Both indoor and outdoor LED Error Code Indicator helps to simplify the troubleshooting process. Where there's fault detected during operation, the defect code will indicate the faults.

- **Wireless Remote Control**

- The compact LCD transmitter is able to operate the air conditioner unit within the distance of 9 meters.
- Fan motor speed can be set at low / medium / high or automatic.
- Sleep mode automatically increase set temperature since room temperature is lower at night thus achieving comfort surrounding.
- Airflow direction can be controlled automatically.
- Room temperature is controlled by electronic thermostat.
- The unit can be preset to on and off automatically for maximum of 15 hours by using timer on/off.
- Introducing turbo mode, which allows inverter compressor operates at high power and maximum speed to achieve required temperature fast.

# Nomenclature



# Specifications

MODEL		INDOOR UNIT		MWMX 010FR		MWMX 015FR			
		OUTDOOR UNIT		M5LCX 010CR		M5LCX 015CR			
NOMINAL COOLING CAPACITY			W	2,784 (1,084 - 3,516)		3,516 (1,084 - 3,780)			
			Btu/h	9,500 (3,700 - 12,000)		12,000 (3,700 - 15,000)			
NOMINAL HEATING CAPACITY			W	3,370 (1,172 - 4,395)		4,102 (1,172 - 4,981)			
			Btu/h	11,500 (4,000 - 15,000)		14,000 (4,000 - 17,000)			
RATED TOTAL POWER CONSUMPTION (COOLING)			W	730 (300 - 1,000)		1,095 (300 - 1,780)			
RATED TOTAL POWER CONSUMPTION (HEATING)			W	1,000 (290 - 1,680)		1,270 (290 - 1,950)			
RATED TOTAL RUNNING CURRENT (COOLING)			A	3.50		4.80			
RATED TOTAL RUNNING CURRENT (HEATING)			A	4.80		5.40			
POWER SOURCE			V/Ph/Hz	220 - 240 / 1 / 50					
REFRIGERANT			R410A						
INDOOR UNIT	FAN	AIR FLOW	HIGH	L/s / cfm	142 / 300		146 / 310		
			MEDIUM	L/s / cfm	109 / 230		127 / 270		
			LOW	L/s / cfm	90 / 190		109 / 230		
		FAN MOTOR		4P 13W		4P 13W			
		INPUT POWER		W	34		36		
		RUNNING CURRENT		A	0.15		0.15		
	COIL	TUBE	MATERIAL		INNER GROOVED COPPER TUBE				
			DIAMETER	mm/in	7.0 / 0.276				
			THICKNESS	mm/in	0.32 / 0.013				
		FIN	MATERIAL		ALUMINIUM (HYDROPHILIC)				
			THICKNESS	mm/in	0.11 / 0.004				
			ROW	2					
	FIN PER INCH		18						
	FACE AREA		m <sup>2</sup> /ft <sup>2</sup>	0.198 / 2.131					
	DIMENSION	HEIGHT	mm/in	290 / 11.4					
		WIDTH	mm/in	815 / 32.1					
		DEPTH	mm/in	181 / 7.1					
	WEIGHT		kg	9.5 / 20.90					
	SOUND PRESSURE LEVEL - H / M / L		dBA	38 / 35 / 30		39 / 36 / 31			
	CONTROL	ROOM TEMPERATURE		FUZZY LOGIC CONTROL					
		AIR DISCHARGE		LOUVER (UP & DOWN) & GRILLE (LEFT & RIGHT)					
			OPERATION		LCD WIRELESS REMOTE CONTROL				
	CONDENSATE DRAIN SIZE		mm/in	16 / 0.63					
	AIR FILTER		ANTI-FUNGUS POLYPROPYLENE FILTER						
PACKING DIMENSION	HEIGHT	mm/in	371 / 14.6						
	WIDTH	mm/in	875 / 34.4						
	DEPTH	mm/in	269 / 10.6						
OUTDOOR UNIT	COMP.	COMPRESSOR TYPE		DC BRUSHLESS SCROLL					
		RATED RUNNING CURRENT (COOLING)		A	3.2	4.4			
		RATED RUNNING CURRENT (HEATING)		A	4.6	5.0			
		INPUT POWER (COOLING)		W	632	991			
		INPUT POWER (HEATING)		W	912	1166			
		PROTECTION DEVICE		ELECTRONIC CONTROL					
	FAN	FAN TYPE / DRIVE		PROPELLER / DIRECT					
		BLADE MATERIAL		GLASS REINFORCED ACRYL STYRENE RESIN					
		DIAMETER	mm/in	401 / 15.8					
		RATED RUNNING CURRENT		A	0.24	0.29			
		MOTOR OUTPUT		W	25	35			
		RATED INPUT POWER		W	56	68			
	COIL	TUBE	MATERIAL		SEAMLESS INNER GROOVED COPPER TUBE				
			DIAMETER	mm/in	7 / 0.276				
			THICKNESS	mm/in	0.32 / 0.013				
		FIN	MATERIAL		ALUMINIUM (HYDROPHILIC)				
			THICKNESS	mm/in	0.11 / 0.004				
			ROW	2					
	FIN PER INCH		18						
	FACE AREA		m <sup>2</sup> /ft <sup>2</sup>	0.35 / 3.78					
	DIMENSION	HEIGHT	mm/in	540 / 21.3					
		WIDTH (WITH COVER)	mm/in	700 (+70) / 27.6 (+2.8)					
		DEPTH	mm/in	250 / 9.8					
	WEIGHT		kg	38.0 / 83.8					
CASING	MATERIAL		GALVANISED MILD STEEL						
	THICKNESS		mm/in	0.8 / 0.031					
	FINISHING		EPOXY POLYESTER POWDER						
SOUND PRESSURE LEVEL		dBA	47		52				
PIPE	TYPE		FLARE						
	SIZE	LIQUID	mm/in	6.35 / 0.250					
		GAS	mm/in	9.52 / 0.375		12.7 / 0.500			
PACKING DIMENSION	HEIGHT	mm/in	601 / 23.7						
	WIDTH	mm/in	803 / 31.6						
	DEPTH	mm/in	320 / 12.6						
REFRIGERANT CHARGE		kg	0.78 / 1.72		0.79 / 1.74				

1) ALL SPECIFICATIONS ARE SUBJECTED TO CHANGE BY THE MANUFACTURER WITHOUT PRIOR NOTICE.

2) NOMINAL COOLING AND HEATING CAPACITY ARE BASED ON THE CONDITIONS BELOW :

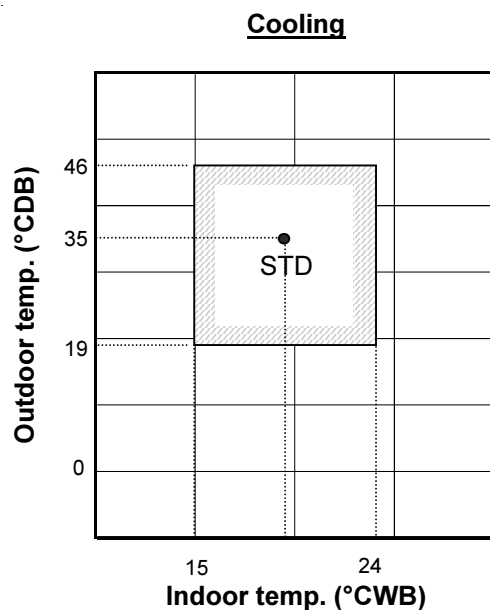
a) COOLING - 27°C DB / 19°C WB INDOOR AND 35°C DB OUTDOOR

b) HEATING - 21.1°C DB / 15.6°C WB INDOOR AND 8.3°C DB / 6.1°C WB OUTDOOR

# Operating Range

Ensure the operating temperature is in allowable range.

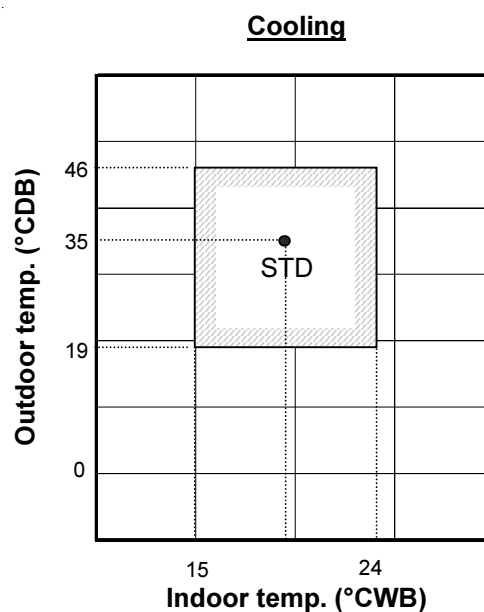
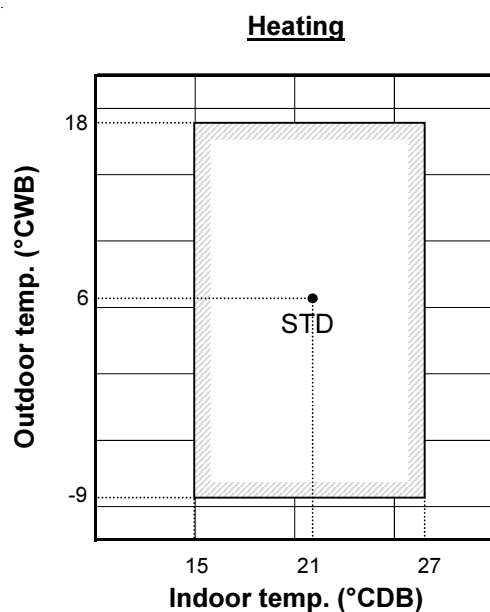
## Cooling only



### **Caution :**

The use of your air conditioner outside the range of working temperature and humidity can result in serious failure.

## Heatpump



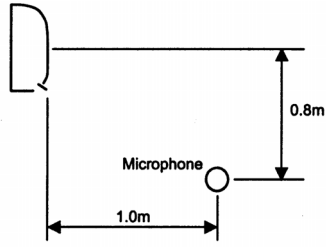
# Noise Level

## Sound Pressure Level (Measured In Anechoic Room)

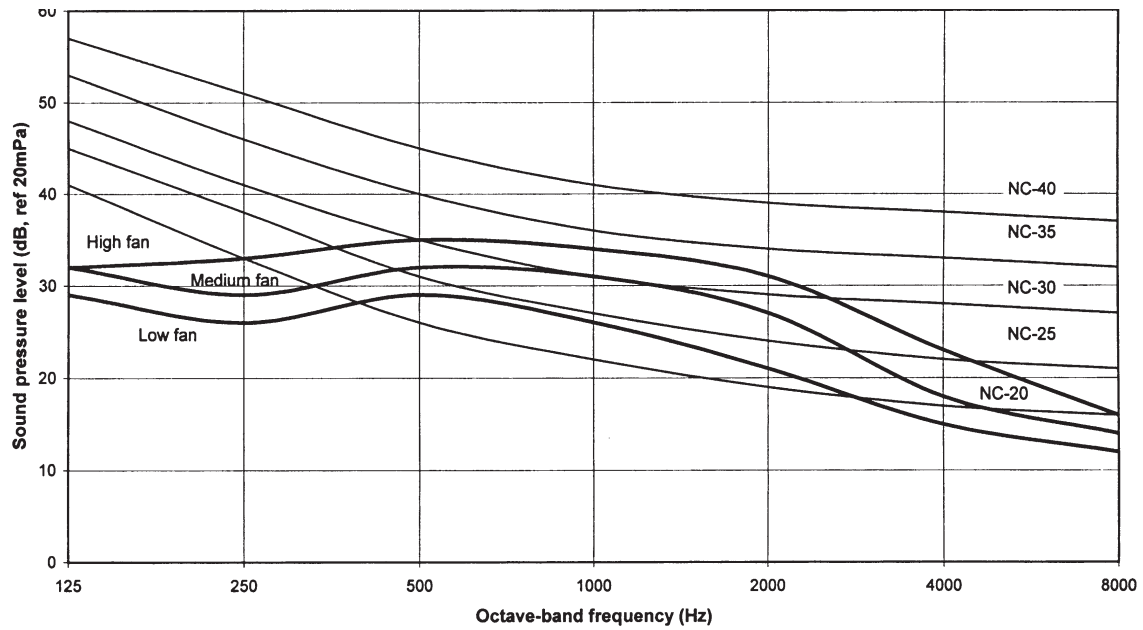
DC Inverter Wall Mounted Unit

Model	Speed (RPM)	1/1 Octave Sound Pressure Level (dB, ref 20μPa)							Overall A (dBA)	Noise Criteria
		125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz		
MWMX 010FR	H (1250)	32	33	35	34	31	23	16	38	33
	M (1110)	32	29	32	31	27	18	14	35	30
	L (980)	29	26	29	26	21	15	12	30	24
MWMX 015FR	H (1300)	32	34	36	36	32	24	16	39	35
	M (1150)	32	30	33	33	29	20	15	36	32
	L (1000)	30	26	30	27	22	15	13	31	25

Microphone position: MWMX - F/FR - 1m in front of the unit and 0.8m below the vertical centre line of the unit. (JIS C 9612)

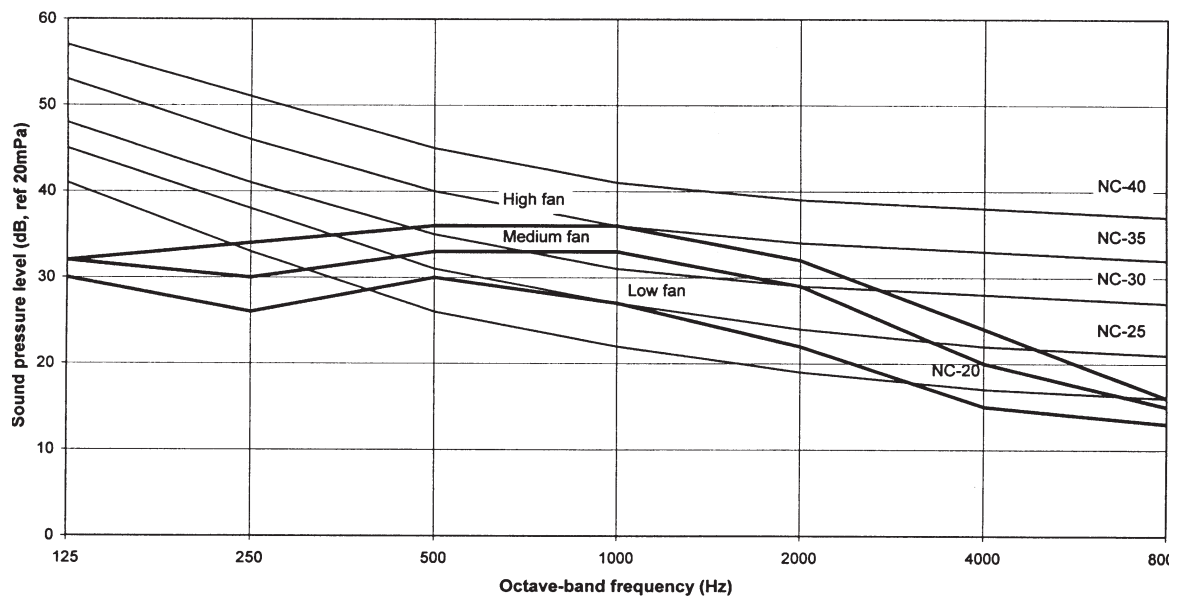
Model	Measuring location
MWMX 010FR MWMX 015FR	 <p>Standard : JIS C 9612</p>

## MMWX 010FR NC CURVE



Measured in anechoic room at 1m front and 0.8m below the vertical centre line of the unit

## MMWX 015FR NC CURVE

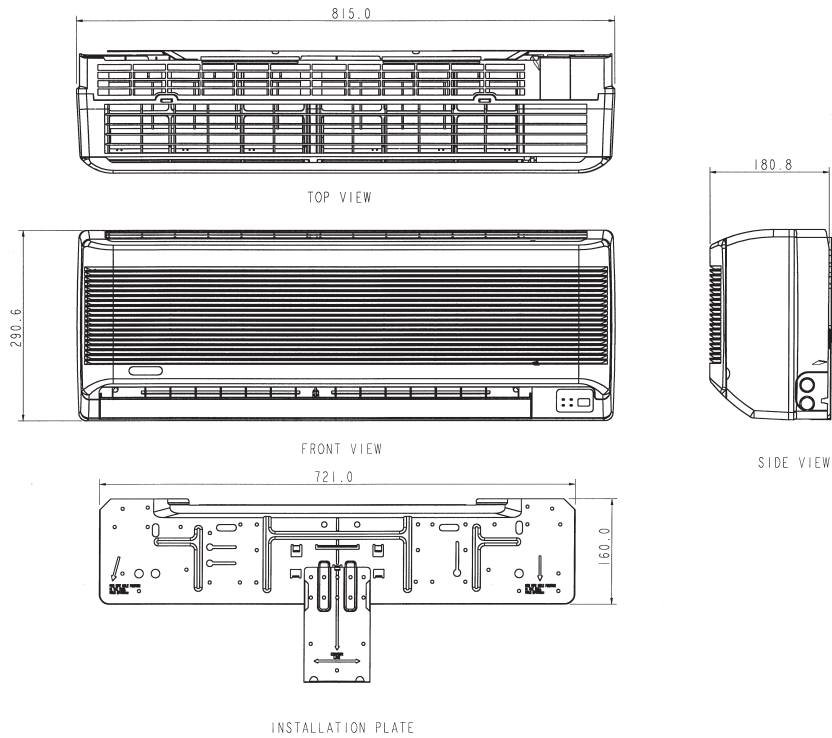


Measured in anechoic room at 1m front and 0.8m below the vertical centre line of the unit

# Outlines And Dimensions

## Indoor Unit

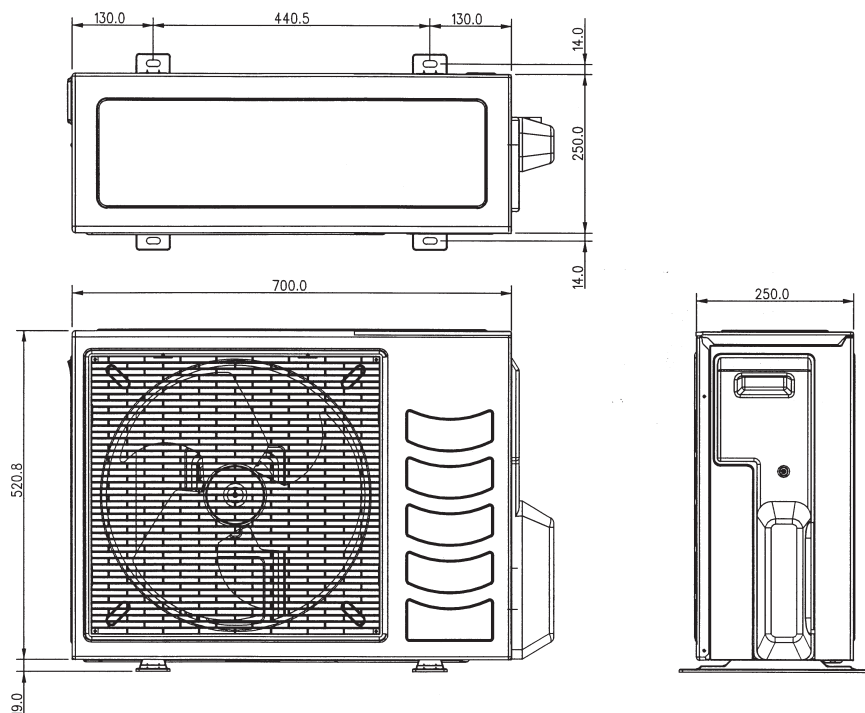
Model : MWMX 010FR / 015FR



Note : Dimension in mm

## Outdoor Unit

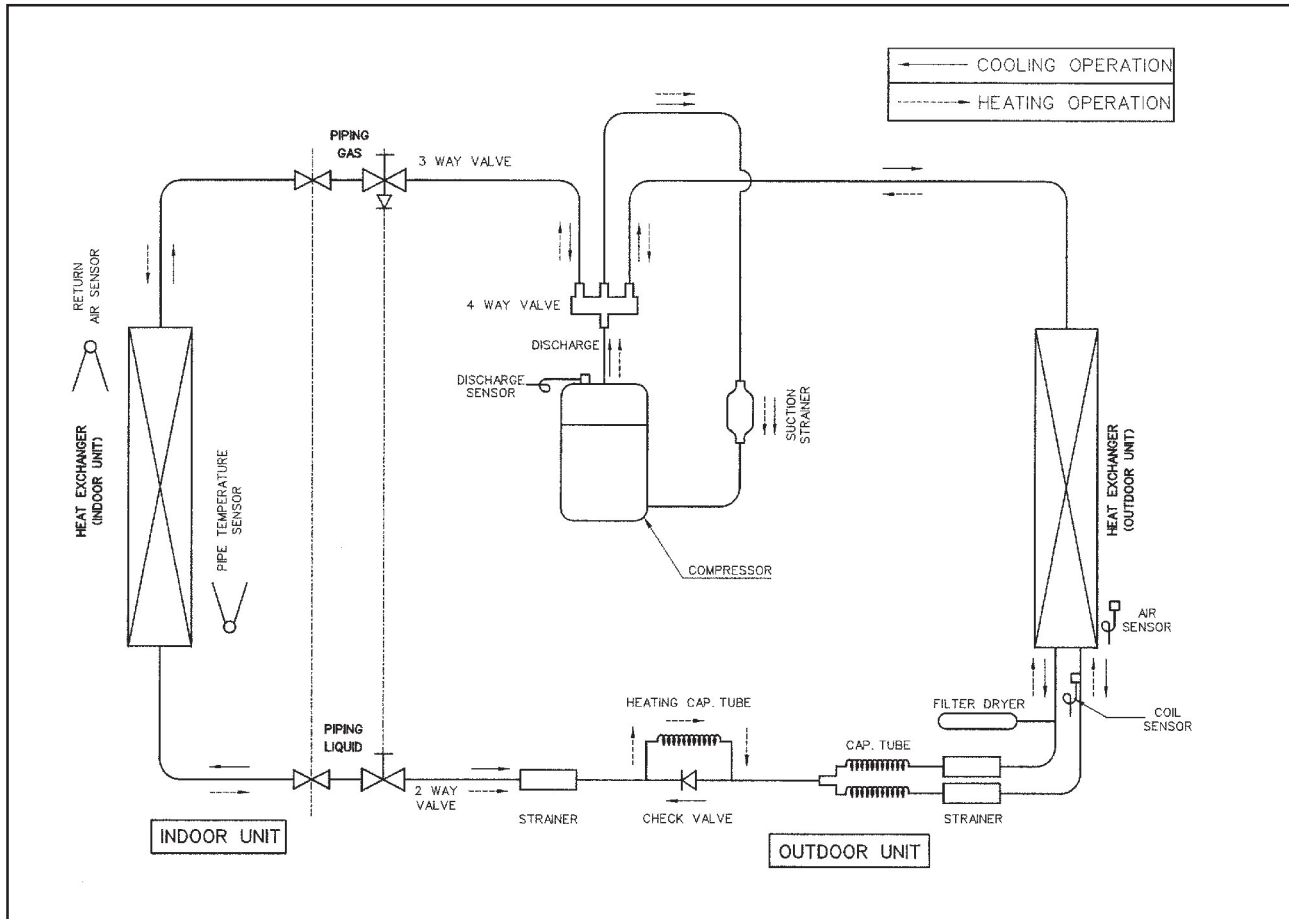
Model : M5LCX 010CR / 015CR



Note : Dimension in mm

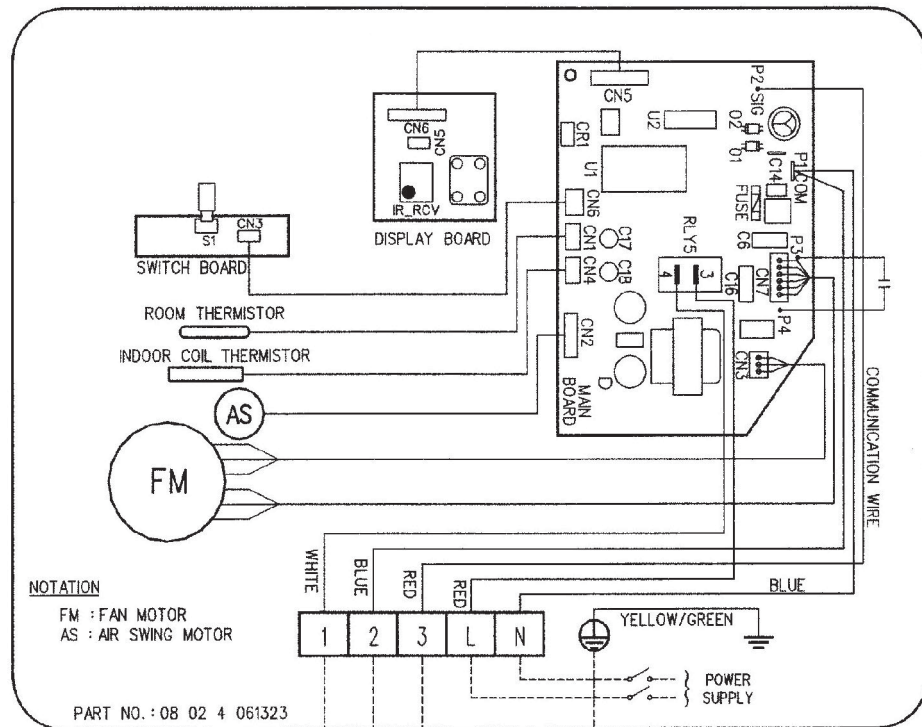
# Refrigeration Cycle Diagram

Model : MWMX 010FR / 015FR - M5LCX 010CR / 015CR

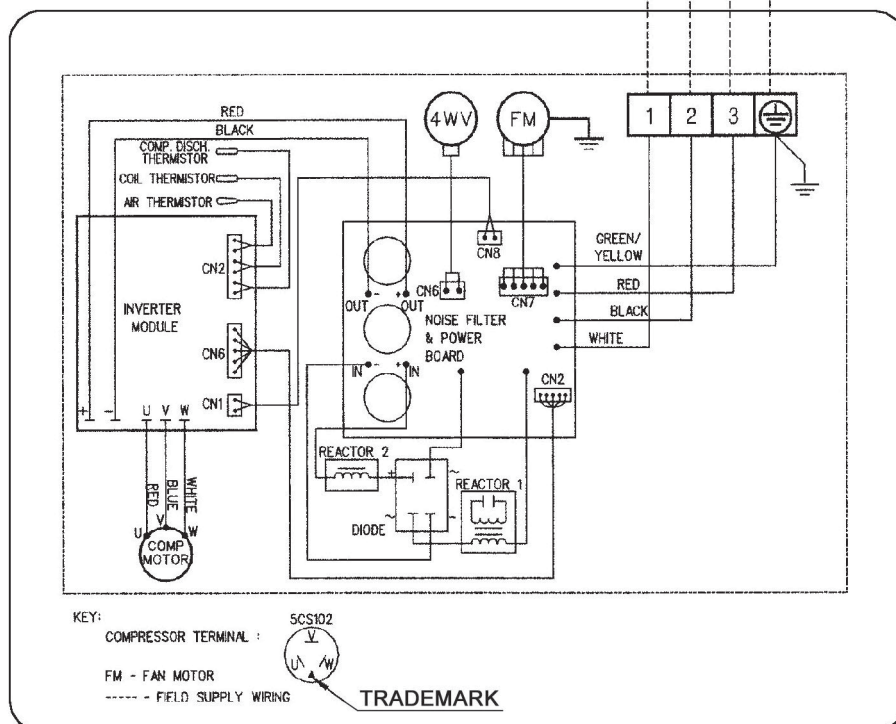


# Wiring Diagrams

Model : MWMX 010FR / 015FR

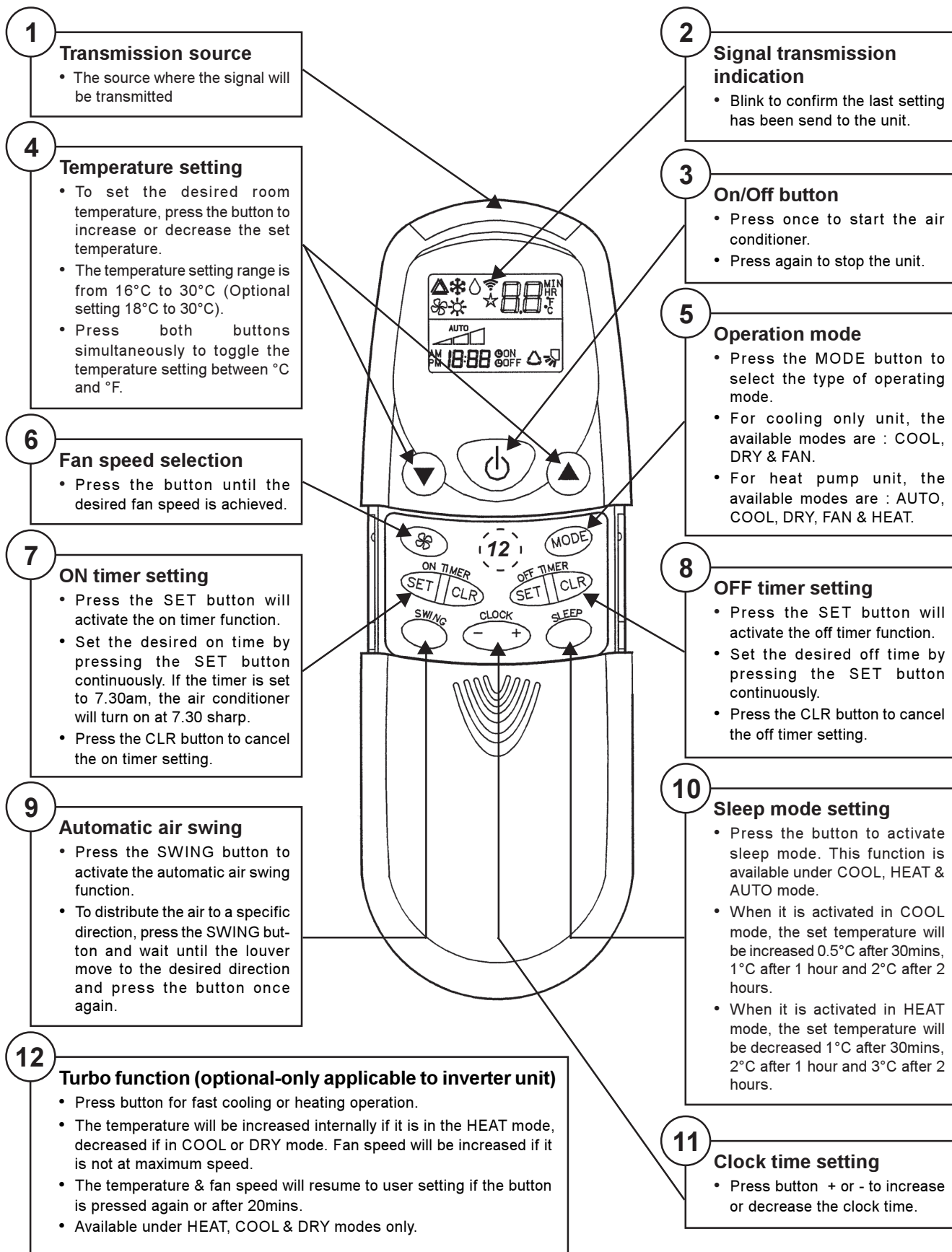


Model : M5LCX 010CR / 015CR



# Remote Controller Operation Guide

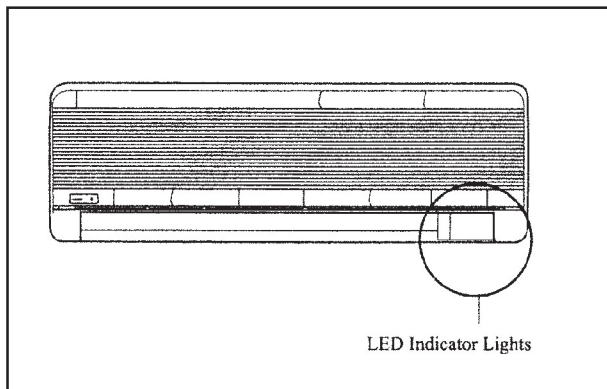
## G7 Remote Controller



## INDICATOR LIGHTS

### IR signal receiver

When all infrared remote control operating signal has been transmitted, the signal receiver on indoor unit will make a (beep) sound to confirm acceptance of the transmitted signal.



### Inverted Cooling Unit

The table shows the LED indicator lights for the air conditioner unit under normal operation and fault conditions. The LED indicator lights are located at the bottom right side of the air conditioner unit.



Timer



Power ON







Sleep mode



Dry mode

**LED Indicator Lights : Normal Operation And Fault Indication Table**

				Operation / Fault Indicator	Action
○		○		Timer on	-
	○	○		Sleep mode on	-
		○	○	Dry mode	-
◐				Compressor overload protection	Call your dealer
			◐	Indoor temperature sensors contact loose / short	Call your dealer
		◐		Outdoor temperature sensors contact loose / short	Call your dealer
◐		◐		Gas leak / compressor overheat	Call your dealer
◐			◐	Communication error between indoor and outdoor	Call your dealer
		◐	◐	Inverter error / PFC error	Call your dealer
	◐	◐		Outdoor total current trip / DC peak	Call your dealer
◐	◐			Indoor fan feedback error	Call your dealer

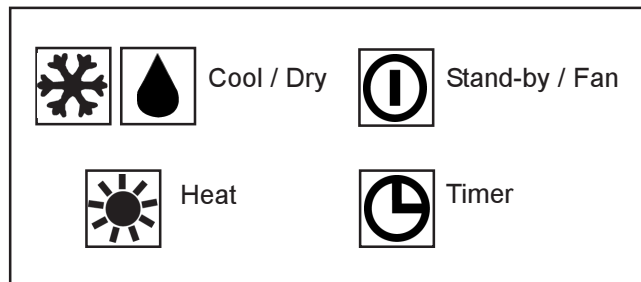
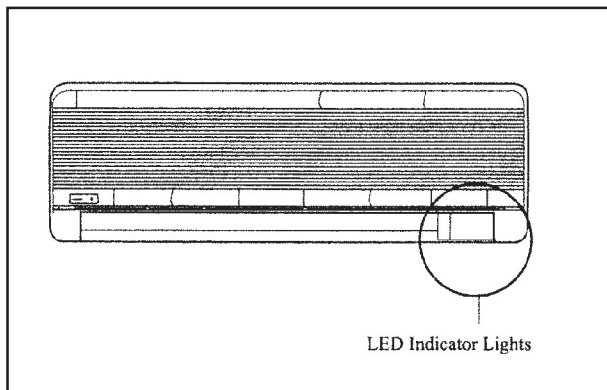
○ - ON

○/● - ON or OFF

◐ - Blinking





























## Inverter Heatpump Unit

## LED Indicator Lights For Inverter Heatpump Unit



### LED Display

The LED in indoor and outdoor unit indicate operation modes / faults detected

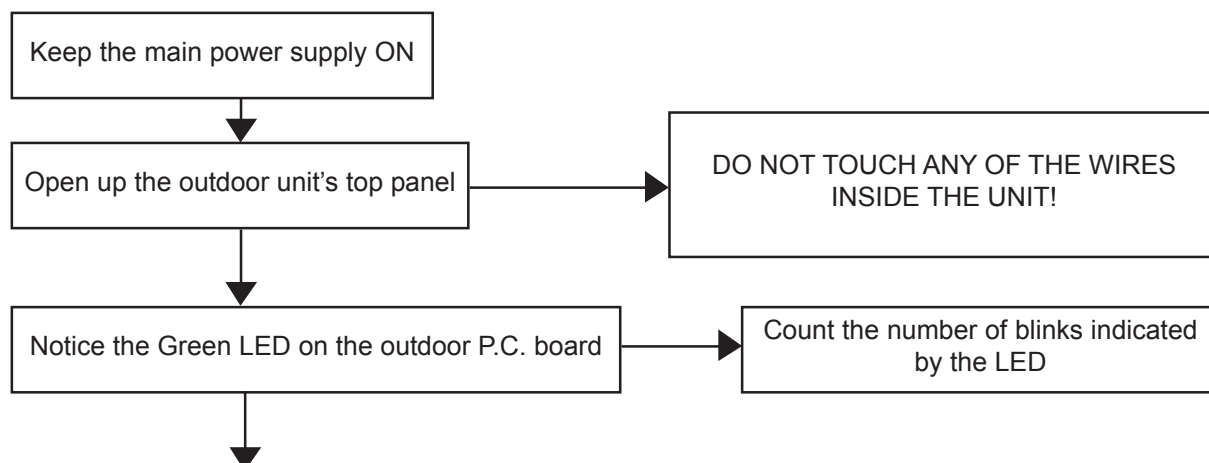
				Normal Operation / Fault Condition	Action
				Cooling mode	-
				Dry mode	-
				Stand-by / Fan mode	-
				Heat mode	-
				Auto mode	-
				Defrost operation	-
				Compressor overload protection	Call your dealer
				Indoor temperature sensors contact loose / short	Call your dealer
				Outdoor temperature sensors contact loose / short	Call your dealer
				Gas leak / compressor overheat	Call your dealer
				Communication error between indoor and outdoor	Call your dealer
				Inverter error / PFC errore	Call your dealer
				Outdoor total current trip / DC peak	Call your dealer
				Indoor fan feedback error	Call your dealer

○ - ON

○/● - ON or OFF

● - Blinking

## **Compressor Stopped Special Instruction**



Blink	Fault Indication	Corrective Action
1	Outdoor ambient sensor error	Check ambient sensor wire and connection
2	Outdoor coil sensor error	Check coil sensor wire and connection
3	Discharge sensor error / Compressor overheat indication	Check discharge sensor wire and connection / Not enough refrigerant / Indoor overload
4	DC compressor feedback	Call local dealer
5	Communication error	Check interconnection communication wire
6	Over current	Call local dealer
7	No load	Check compressor wire and connection
8	Over / under voltage	Check power supply
9	DC compressor start failure	Call local dealer
10	Cooling overload	Check whether outdoor unit is blocked or not
11	Defrost	Wait till defrost is over then restart
12	IPM Protection	Check IPM
13	EEPROM read error	Change EEPROM
14	EEPROM write error	Change EEPROM
15	DC fan motor no feedback	Check fan motor wire connection

**\*If the problem persists, contact your local dealer straight away.**

## **Normal Running Mode Condition**

If the air conditioner unit has no faulty indication and the compressor is running at normal mode, the outdoor P.C. board's LED indication will blink at a slower pace. The table below shows the significant meaning of different running mode and limitation for this air conditioner unit.

**One must not attempt to see the LED indication blinking unless instructed to do so.**

Blinks	Blinking indication
1	Normal running, with no limitation
2	Voltage limit
3	Heating unit : Indoor coil temperature limit
4	Total current limit
5	Discharge temperature limit
6	Cooling unit : Indoor coil temperature limit
7	Indoor fan control
8	Outdoor frequency adjustment

# Safety Precautions Before Installation

**Before Operating, Please Read The Following “Safety Precautions” Carefully.**

To prevent injury to the user or other people and properties damage, the following instructions must be followed.

- Incorrect operation due to ignoring of instruction will cause harm or damage, the seriousness is classified by the following indications.



**Warning:** This sign indicates the possibility of causing death or serious injury.



**Caution:** This sign indicates the possibility of causing injury or damage to properties only.



## Warning


- This unit must be installed by a qualified technician.
- All field wiring must accordance to the National Wiring Regulation.

## Important

The wires in this mains lead are coloured in accordance with the following code:

Green and yellow	.....>	Earth
Blue	.....>	Neutral
Brown	.....>	Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

- The wire which is coloured green and yellow must be connected to the terminal in the plug which is marked with the earth symbol  or coloured green or green and yellow.
- The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
- The wire which is coloured brown must be connected to the terminal which is marked with letter L or coloured red.

## Note

If the supply cord is damaged, it must be replaced by the special cord obtainable at authorized service/ parts centers.

This unit is not provided with a plug, therefore the power supply wire must be connected by a qualified chageman.

## Caution

Remove power plug or disconnect from the mains before servicing the appliance.



Symbol (with white background) denotes item that is PROHIBITED from doing.



Symbol (with black background) denotes item that is COMPULSORY to be carried out.



## Caution

**Please confirm the following important points when installation**

- **Grounding is necessary**



It may cause electrical shock if grounding is not perfect.

- **Do not install the unit where leakage of flammable gas may occur**



In case of gas leaks and accumulates at the surrounding of the unit, it may cause fire ignition.

- **Confirm drainage piping is connected properly**



If it is not connected perfectly, it may cause water leakage and dampen the furniture.

- **Confirm the unit is switched off before install, service or maintain the unit**



If it is not switched off, it may cause injury to the installer by any of the moving part especially fan.

- **Do not overcharge the unit**



This unit is factory pre charged. Over charge will cause over current or damage to the compressor.  
Refer to page 25 in case of top up charge is necessary.

- **Confirm cover back the unit panel after servicing or installation**



Unsecure panel will cause unit noisy.

# Special Precautions For R410A

## SPECIAL PRECAUTIONS WHEN DEALING WITH REFRIGERANT R410A UNIT

### 1) WHAT IS NEW REFRIGERANT R410A?

R410A is a new HFC refrigerant which does not damage the ozone layer. The working pressure of this new refrigerant is 1.6 times higher than conventional refrigerant (R22), thus proper installation / servicing is essential.

### 2) COMPONENTS

Mixture weight composition     R32(50%) and R125(50%)

### 3) CHARACTERISTIC

- R410A liquid and vapor components have different compositions when the fluid evaporates or condenses. Hence, when leak occurs and only vapor leaks out, the composition of the refrigerant mixture left in the system will change and subsequently affect the system performance. **DO NOT** add new refrigerant to leaked system. It is recommended that the system should be evacuated thoroughly before recharging with R410A.
- When refrigerant R410A is used, the composition will differ depending on whether it is in gaseous or liquid phase. Hence when charging R410A, ensure that only liquid is being withdrawn from the cylinder or can. This is to make certain that only original composition of R410A is being charged into the system.
- POE oil is used as lubricant for R410A compressor, which is different from the mineral oil used for R22 compressor. Extra precaution must be taken not to expose the R410A system too long to moist air.

### 4) CHECK LIST BEFORE INSTALLATION/SERVICING

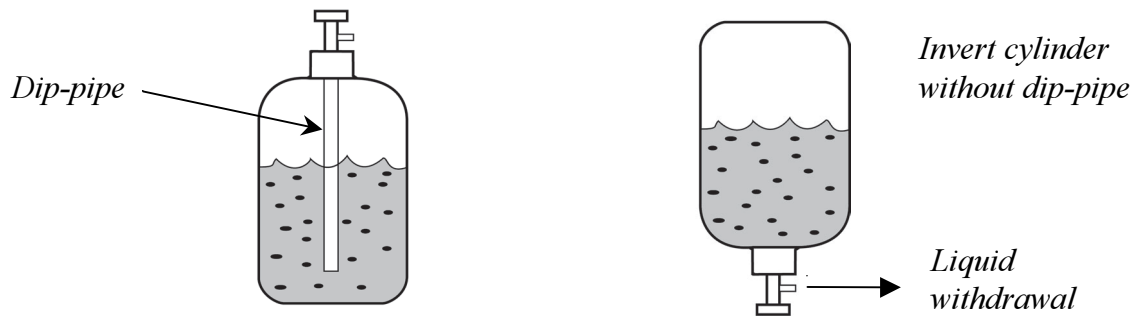
- Tubing  
Refrigerant R410A is more easily affected by dust or moisture compared with R22, make sure to temporarily cover the ends of the tubing prior to installation
- Compressor oil  
No additional charge of compressor oil is permitted.
- Refrigerant  
No other refrigerant other than R410A
- Tools (size of service port is different from R22 system)  
Tools specifically for R410A only (must not be used for R22 or other refrigerant)
  - i) Manifold gauge and charging hose
  - ii) Gas leak detector
  - iii) Refrigerant cylinder/charging cylinder
  - iv) Vacuum pump c/w adapter
  - v) Flare tools
  - vi) Refrigerant recovery machine

### 5) HANDLING AND INSTALLATION GUIDELINES

Like R22 system, the handling and installation of R410A system are closely similar. All precautionary measures; such as ensuring no moisture, no dirt or chips in the system, clean brazing using nitrogen, and thorough leak check and vacuuming are equally important requirements. However, due to its hygroscopic POE oil, additional precautions must be taken to ensure optimum and trouble free system operation.

- a) During installation or servicing, avoid prolonged exposure of the internal part of the refrigerant system to moist air. Residual POE oil in the piping and components can absorb moisture from the air.
- b) Ensure that the compressor is not exposed to open air for more than the recommended time specified by its manufacturer (typically less than 10 minutes). Remove the seal plugs only when the compressor is about to be brazed.
- c) The system should be thoroughly vacuumed to 1.0 Pa ( 700mmHg) or lower. This vacuuming level is more stringent than R22 system so as to ensure no incompressible gas and moisture in the system.

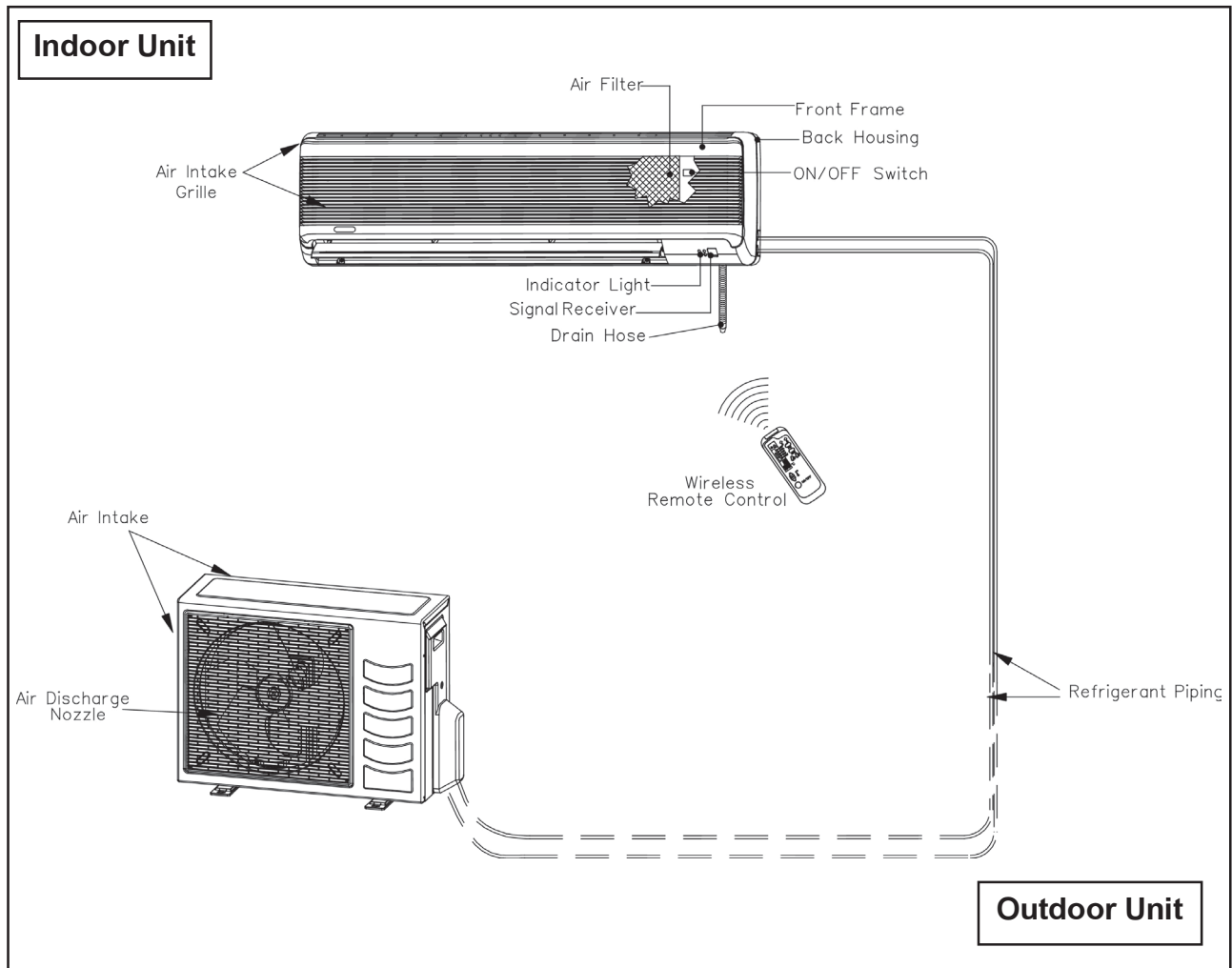
- d) When charging R410A, ensure that only liquid is being withdrawn from the cylinder or can. This is to ensure that only the original composition of R410A is being delivered into the system. The liquid composition can be different from the vapor composition.



- f) Normally, the R410A cylinder or can is being equipped with a dip pipe for liquid withdrawal. However, if the dip pipe is not available, invert the cylinder or can so as to withdraw liquid from the valve at the bottom.

# Installation

## Installation Diagram



**CAUTION :** Before installing the unit, ensure that the power supply matches the power requirement of the air conditioner

## 1) Selection Of Location And Space

### (A) Indoor Unit

Install the fan coil (indoor) unit at a location with the following requirements

- Location is suitable for wiring, piping and drainage.
- No obstruction of air flow into and out of unit where cooler air can be evenly distributed. (See fig. 1)
- Ensure that air discharge is not short circuited with air intake.
- Ensure that wall is sufficiently strong, rigid, flat, perpendicular and vibration free.
- Where air filter cassette can be slid in or out easily.
- Where there is no danger of flammable gases.
- Where there is no direct sunlight on unit.
- Also to take into consideration a place for the installation of the Wireless LCD Remote Controller.

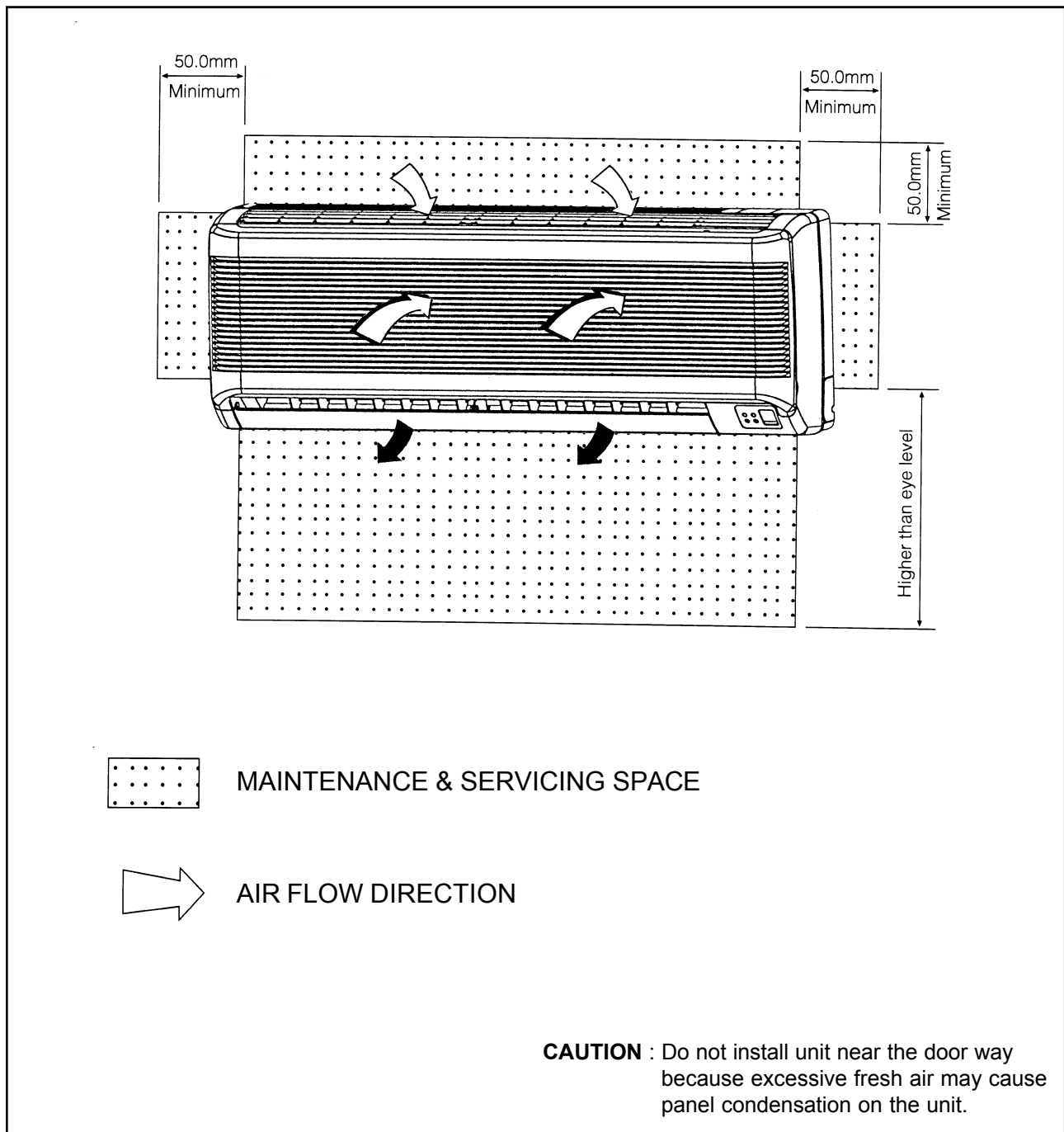
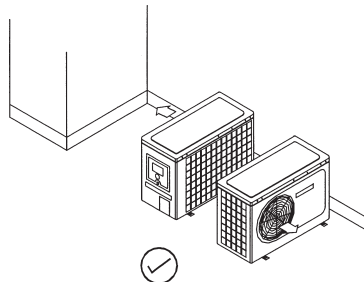
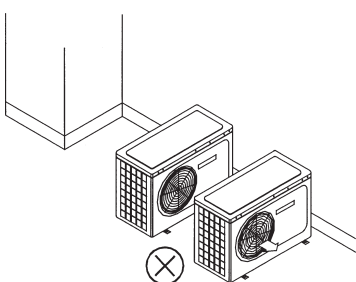


Fig. 1

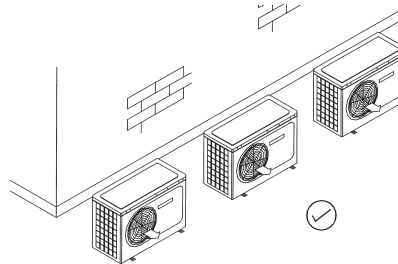
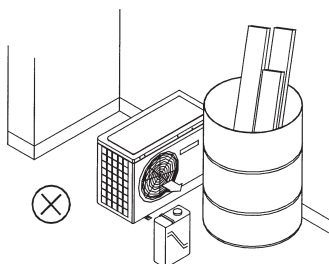
## (B) Outdoor Unit

As condensing temperature rises, evaporating temperature rises and cooling capacity drops. In order to achieve maximum cooling capacity, the location selected for outdoor unit should fulfill the following requirements :

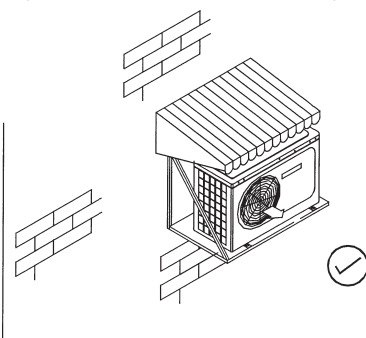
- Install the condensing (outdoor) unit in a way such that hot air distributed by the outdoor condensing unit cannot be drawn in again (as in the case of short circuit of hot discharge air). Allow sufficient space for maintenance around the unit.



- Ensure that there is no obstruction of air flow into or out of the unit. Remove obstacles which block air intake or discharge.



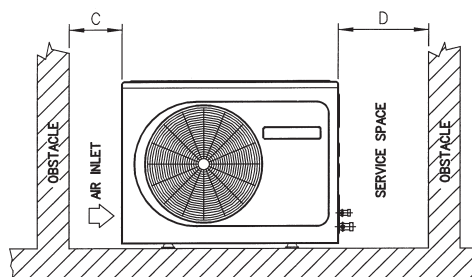
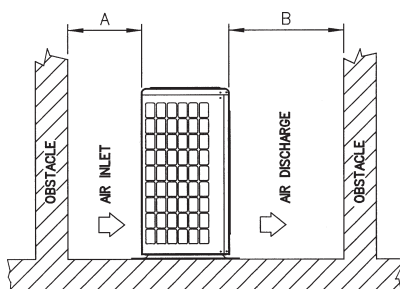
- The location must be well ventilated, so that the unit can draw in and distribute plenty of air thus lowering the condensing temperature.
- A place capable of bearing the weight of the outdoor unit and isolating noise and vibration.
- A place protected from direct sunlight. Otherwise use an awning for protection, if necessary.



- The location must not be susceptible to dust or oil mist.

## Installation Clearance

- Outdoor units must be installed such that there is no short circuit of the hot discharge air or obstruction to smooth air flow. Select the coolest possible place where intake air should not be hotter than the outside temperature (max. 45°C)



ALL MODELS	A	B	C	D
Minimum Distance	300 mm	1000 mm	300 mm	500 mm

**CAUTION :** If the condensing unit is operated in an atmosphere containing oils(including machine oils), salt(coastal area), sulphide gas(near hot spring, oil refinery plant), such substances may lead to failure of the unit.

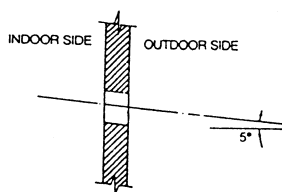
## 2) Drilling Holes And Mounting Installation Plate

### CAUTION:

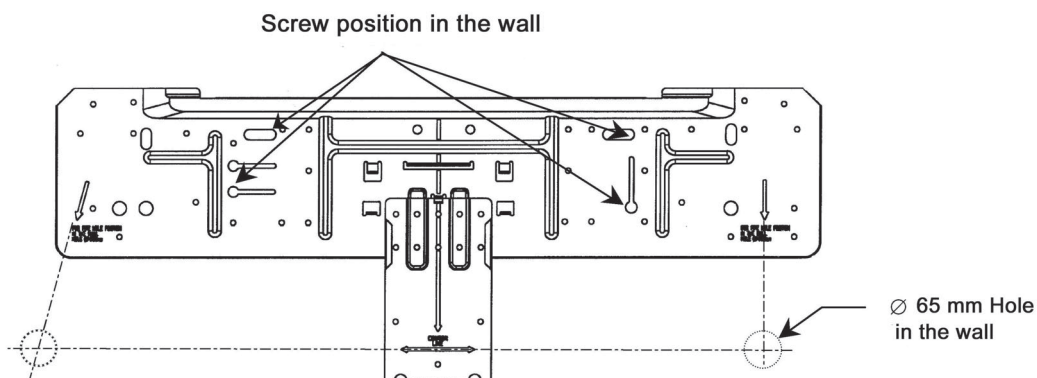
- i) Please check the unit weight for each model. Always ensure that the wall is sufficiently strong to withstand the weight. If not, it is necessary to reinforce the wall with plate, beams or pillars.
- ii) The unit cannot be directly fixed onto the wall or the likes. In all cases, the installation plate provided **MUST** be used.

- Paste the installation plan provided on the desired location on the wall and mark the holes location accordingly.
- Ensure that the minimum maintenance and servicing space at the top, left and right side of the unit is reserved.
- Ensure also the levelness of the installation plate.
- Drill the screw mounting holes (minimum 4 screws are required).
- Drill the pipe hole at the location as per plan. (This is only applicable for rear piping outlet installation).

Note: The hole should be drilled slightly lower at outdoor side as per figure below:--



- Fix the installation plate firmly to wall, without tilting to left or right. Use a plumb line, if available.



- Fixing method:-

WOODEN FRAME WALL	REINFORCED CONCRETE BUILDING	
	NUT ANCHOR	BOLT ANCHOR
<p>WOOD SCREW INSTALLATION PLATE</p>	<p>NUT INSTALLATION PLATE 10mm</p>	<p>BOLT INSTALLATION PLATE</p>

### 3) Indoor Unit Preparation

- The refrigerant piping can be routed to the unit in 5 direction, by using the cut outs in the unit casing. (See fig. 1)

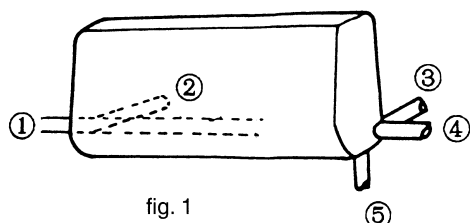


fig. 1

- Carefully bend the pipes to the required position to align with the hole. For right hand and rear side draw out, hold the bottom of the piping and fix direction before shaping it to the desired position (See fig. 2). The condensation drain hose should be taped to the pipes with vinyl tape. The electrical cable can also be taped to the pipes.

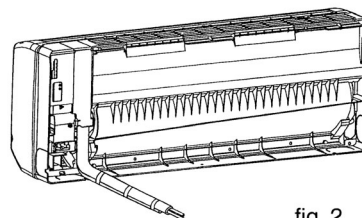
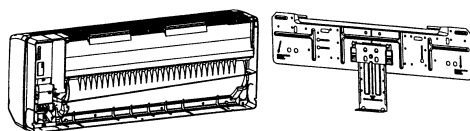


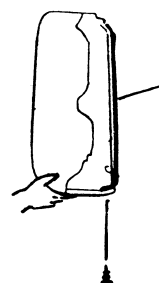
fig. 2

### 4) Mounting Indoor Unit

Hook the indoor unit onto the upper portion of installation plate. (Engage the 2 hooks of rear top of the indoor unit with the upper edge of the installation plate). Ensure the hooks are properly seated on the installation plate by moving in left and right.



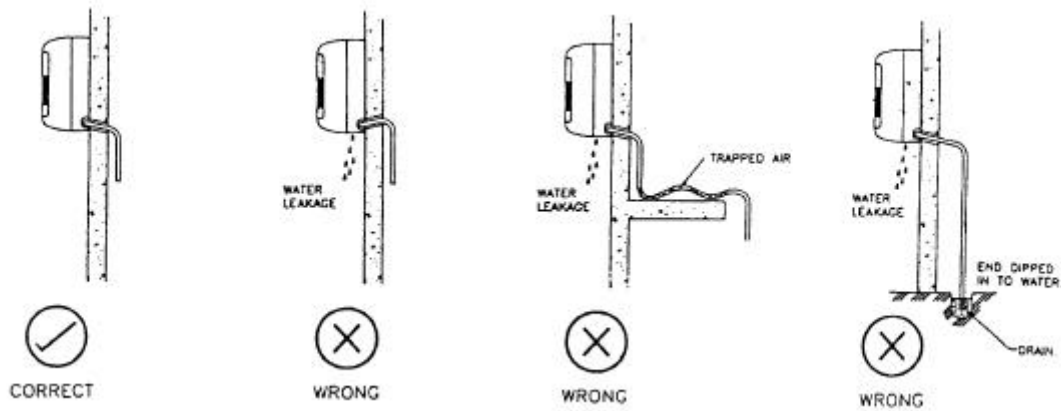
1. Hook the unit into the installation plate.



2. Fix the rivet underneath after completion of installation

## 5) Water Drainage Piping

The indoor drain pipe must be downward gradient for smooth drainage. Avoid situation as shown in figure below.



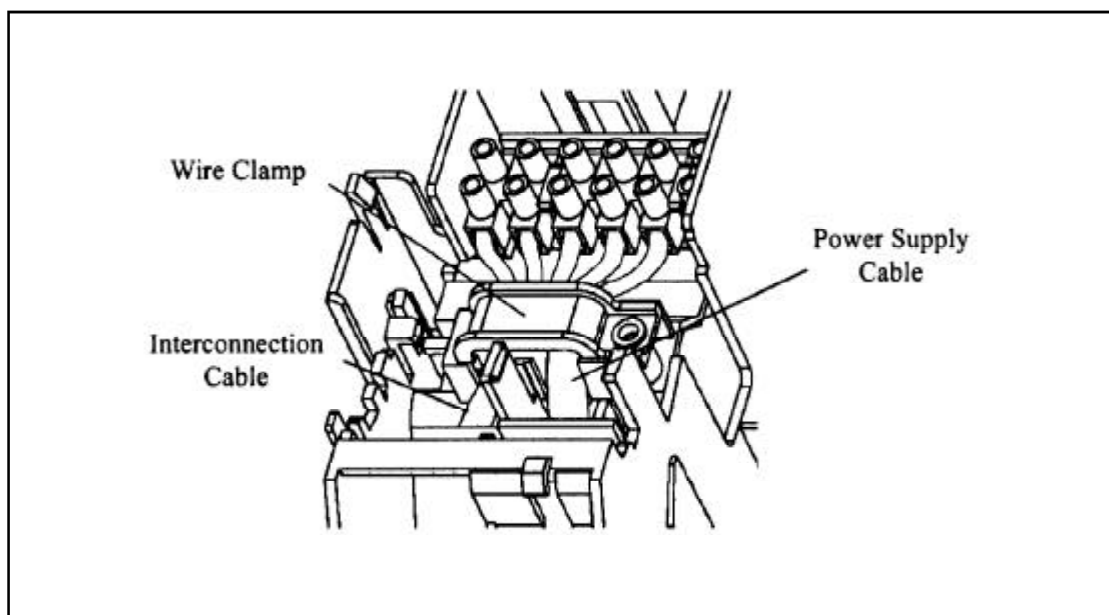
## 6) Wiring

### Electrical Connection

- Wiring regulation on wire diameters differ from country to country. Please refer to your LOCAL ELECTRICAL CODES for field wiring rules. Be sure that installation comply with such rules and regulations.

### General Precautions

- Ensure that the rated voltage of the unit corresponds to the name plate before carrying out proper wiring according to the wiring diagram.
- Provide a power outlet to be used exclusively for each unit. A power supply disconnect and a circuit breaker for over current protection should be provided in the exclusive line.
- The unit must be GROUNDED to prevent possible hazards due to insulation failures.
- All wiring must be firmly connected.
- All wiring must not touch the hot refrigerant piping, compressor or any moving parts of fan motors.
- The field wires from the indoor unit must be clamped on the wire clamp as per shown in the figure.



## 7) Refrigerant Piping

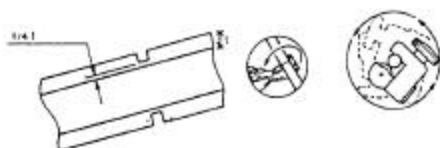
### Maximum Pipe Length And Maximum Number Of Bends

Always choose the shortest path for refrigerant piping and follow the recommendations as tabulated below:

Model	MWMX 010FR	MWMX 015FR
Data		
Max. Length, L (m)	12	12
Max. Elevation, H (m)	5	5
Max. No. of Bends	10	10

### Flare Connection

- Cut the pipe stages by stages, advancing the blade of pipe cutter slowly.

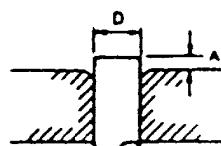


- Remove burr with the burr remover. Hold the flaring end down to prevent burrs from dropping inside pipe.



- The exact length of pipe protruding from the face of the flare die is determined by the flaring tool. The table shows the use of an imperial die and rigid die.

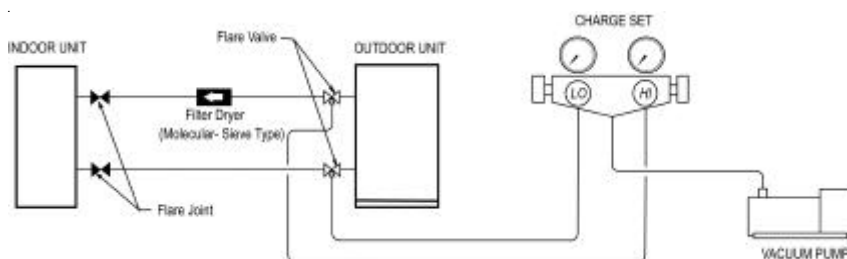
PIPE Ø, D (mm)	A(mm)	
	IMPERIAL DIE	RIGED DIE
6.35 (1/4")	1.3	0.7
9.52 (3/8")	1.6	1
12.7 (1/2")	1.9	1.3
15.88 (5/8")	2.2	1.7



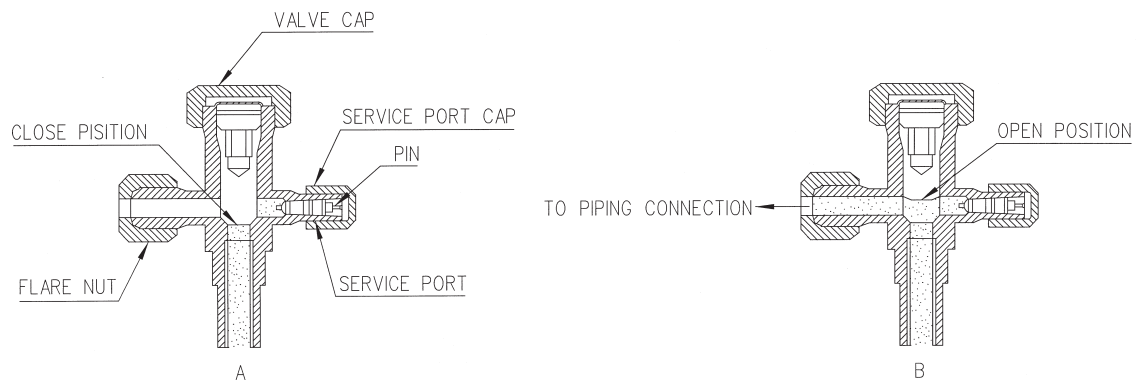
Fix the pipe firmly on the flare die. Match the centers of both the flare die and the flaring punch, and tighten flaring punch fully.

## 8) Vacuuming And Charging

- The precharged outdoor unit does not need any vacuuming or charging. However once it is connected, the connecting pipe line and the indoor need to be vacuumed before releasing the R22/R407C/R410A from the outdoor unit.
  - 1) Open the service port core cap.
  - 2) Connect pressure gauge to the service port.
  - 3) Connect the line to vacuum pump. Open the charging manifold valve and turn the pump on. Vacuum to  $-0.1$  MPa ( $-760$ mmHg) or lower. (Evacuation time varies by the pump but averagely in 1 hour).



4) After evacuation, unscrew the spindle (diagram B) for the gas to run to indoor unit.



### Additional Charge

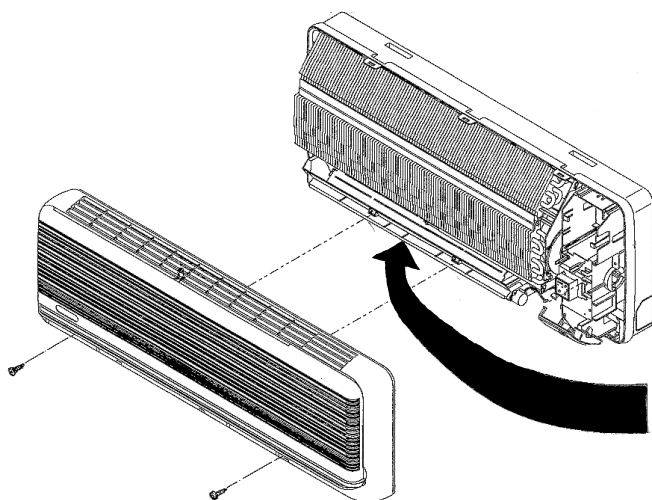
The refrigerant gas is charged in the outdoor unit and, if the piping length is less than 7.6m, additional charge of the refrigerant after vacuuming is not necessary.

When the piping length is more than 7.6m, please use the table below :

Additional charge per meter

Model	R410A
MWMX 010/015 FR	20g / m

# Servicing And Maintenance



## CAUTION:

After installing or servicing the unit, please ensure that the front panel is secured by the 1 hook underneath the front panel.

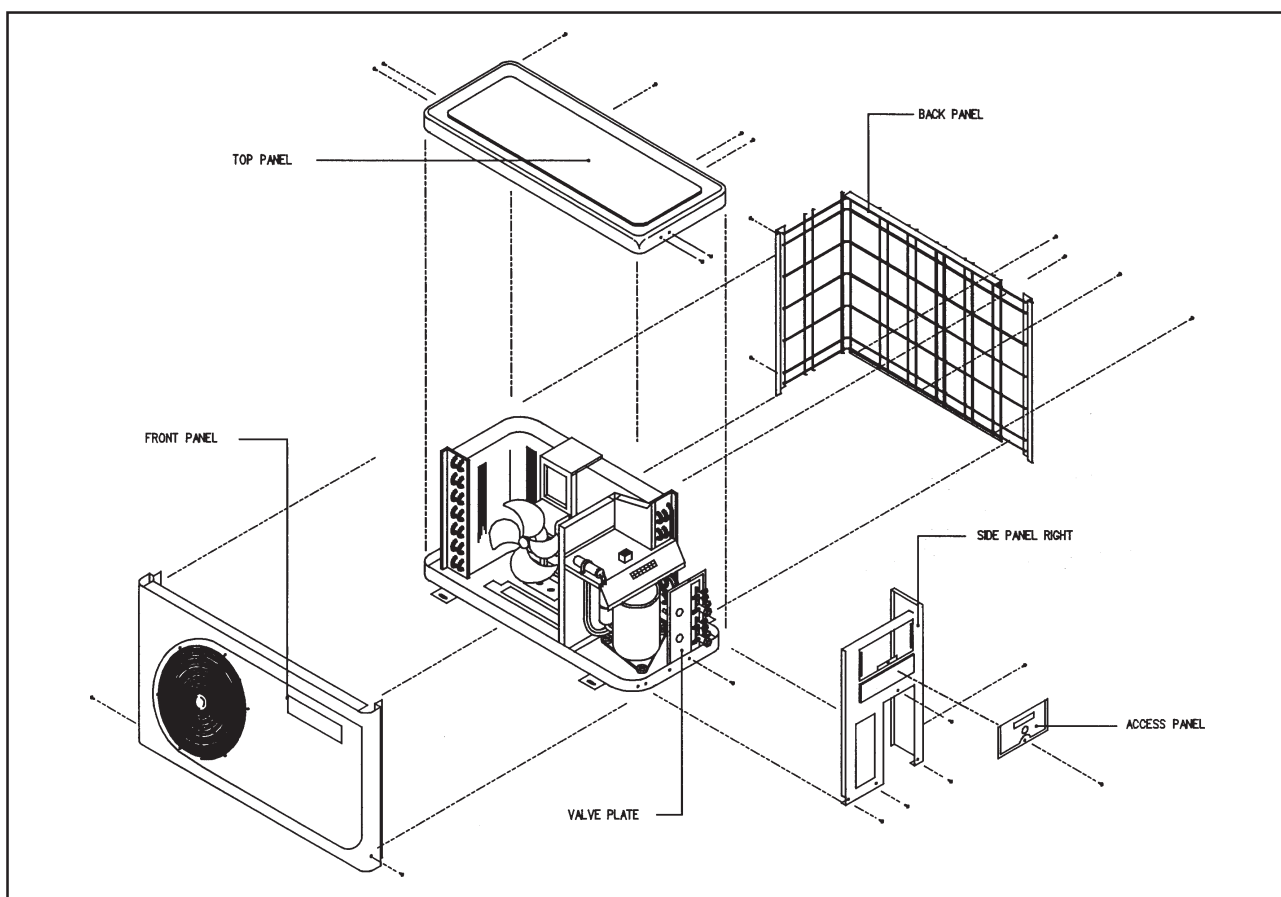
The unit is designed to give a long life operation with minimum maintenance required. However, it should be regularly checked and the following items should be given due attention.

Components	Maintenance Procedure	Recommended Schedule
Indoor Air Filter	<ol style="list-style-type: none"> <li>1. Remove any dust adhering on the filter by using a vacuum cleaner or wash in lukewarm water (below 40°C/104°F) with a neutral cleaning detergent.</li> <li>2. Rinse the filter well and dry before placing it back onto the unit.</li> <li>3. Do not use gasoline, volatile substances or chemicals to clean the filter.</li> </ol>	At least once every 2 weeks. More frequently if necessary.
Indoor Unit	<ol style="list-style-type: none"> <li>1. Clean any dirt or dust on the grille or panel by wiping it with a soft cloth soaked in lukewarm water (below 40°C/104°F) and a neutral detergent solution.</li> <li>2. Do not use gasoline, volatile substances or chemicals to clean the indoor unit.</li> </ol>	At least once every 2 weeks. More frequently if necessary
Condensate Drain Pan and Pipe	<ol style="list-style-type: none"> <li>1. Check and clean.</li> </ol>	Every 3 months.
Indoor Fan	<ol style="list-style-type: none"> <li>1. Check for unusual noise.</li> </ol>	As necessary.
Indoor/Outdoor Coil	<ol style="list-style-type: none"> <li>1. Check and remove dirt which are clogged between fins.</li> <li>2. Check and remove obstacles which hinder air flow in and out of indoor/outdoor unit.</li> </ol>	Every month. Every month.
Electrical	<ol style="list-style-type: none"> <li>1. Check voltage, current and wiring.</li> <li>2. Check faulty contacts caused by loose connections, foreign matters, etc.</li> </ol>	Every 2 months. Every 2 months.
Compressor	<ol style="list-style-type: none"> <li>1. No maintenance needed if refrigerant circuit remains sealed. However, check for refrigerant leak at joints and fittings.</li> </ol>	Every 6 months.
Compressor Lubrication	<ol style="list-style-type: none"> <li>1. Oil is factory charged. Not necessary to add oil if circuit remains sealed.</li> </ol>	No maintenance required.
Fan Motors Lubrication	<ol style="list-style-type: none"> <li>1. All motors pre-lubricated and sealed at factory.</li> </ol>	No maintenance required.

## Pre Start Up Maintenance (After Extended Shutdown)

- Inspect thoroughly and clean indoor and outdoor units.
- Clean or replace air filters.
- Clean condensate drain line.
- Clean clogged indoor and outdoor coils.
- Check fan imbalance before operation.
- Tighten all wiring connections and panels.
- Check for refrigerant leakage.

The design of the M5LCX outdoor series allows servicing to be carried out readily and easily. The removal of the top/front and back panel make almost every part accessible.



Under normal circumstances, these outdoor units only require a check and cleaning of air intake coil surface once quarterly. However, if a unit is installed in areas subjected to much oil mist and dust, the coils must be regularly cleaned by qualified Air Conditioner Service Technicians to ensure sufficient heat exchange and proper operation. Otherwise, the systems life span may be shortened.

### CAUTION!

Do not charge OXYGEN, ACETYLENE OR OTHER FLAMMABLE and poisonous gases into the unit when performing a leakage test or an airtight test. These gases could cause severe explosion and damage if exposed to high temperature and pressure.

It is recommended that only nitrogen or refrigerant be charged when performing the leakage or airtight test.

# Troubleshooting

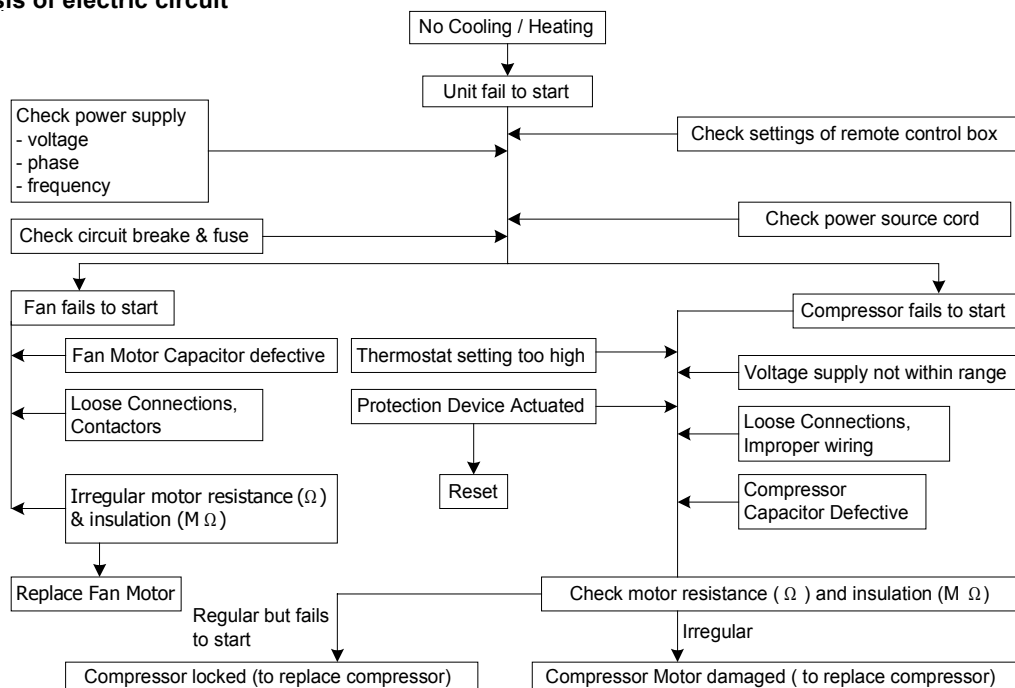
By means of pressure readings :

PRESSURE						PROBABLE CAUSE
Data Circuit	Too Low	A Little Low	Normal	A Little High	Too High	
High Side Low Side					● ●	1. Overcharged with refrigerant. 2. Non-condensable gases in refrigerant circuit (e.g. oil). 3. Obstructed air-intake/discharge. 4. Short circuiting of hot air at condensing unit.
High Side Low Side	●				●	1. Poor compression/no compression (compressor defective.) 2. Check valve stick in open position. 3. Reversing valve leaking.
High Side Low Side	●	●				1. Undercharged with refrigerant. 2. Refrigerant leakage. 3. Air filter clogged/dirty (indoor unit). 4. Indoor fan locked (cooling). 5. Defective defrost control, outdoor coil freezed up (heating). 6. Outdoor fan locked (heating).
High Side Low Side				●	●	1. Outdoor fan blocked (cooling). 2. Outdoor coil dirty (cooling). 3. Indoor fan locked (heating). 4. Indoor filter clogged/dirty (heating). 5. Non-condensable gases in refrigerant circuit (e.g. air).
High Side Low Side				●	●	1. Air intake temperature of indoor unit too high.

## By means of diagnosis flow chart

Generally, there are two kinds of troubles, i.e. starting failure and insufficient cooling/heating. "Starting Failure" is caused by electrical defect while "Insufficient Cooling/Heating" is caused by improper application or defects in refrigerant circuit.

### 1) Diagnosis of electric circuit

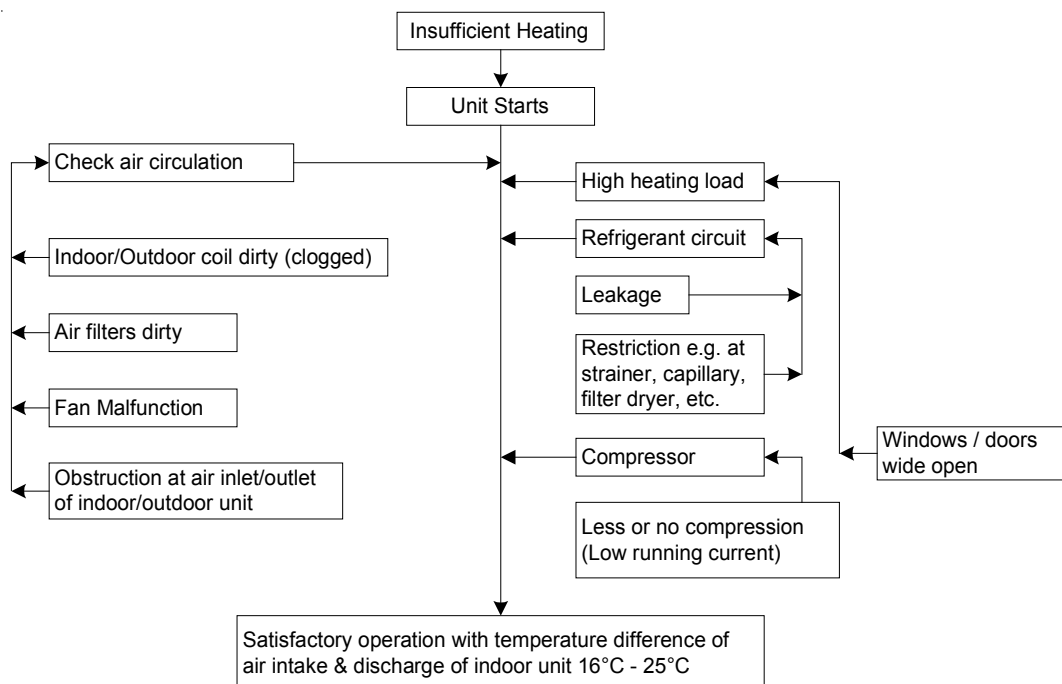
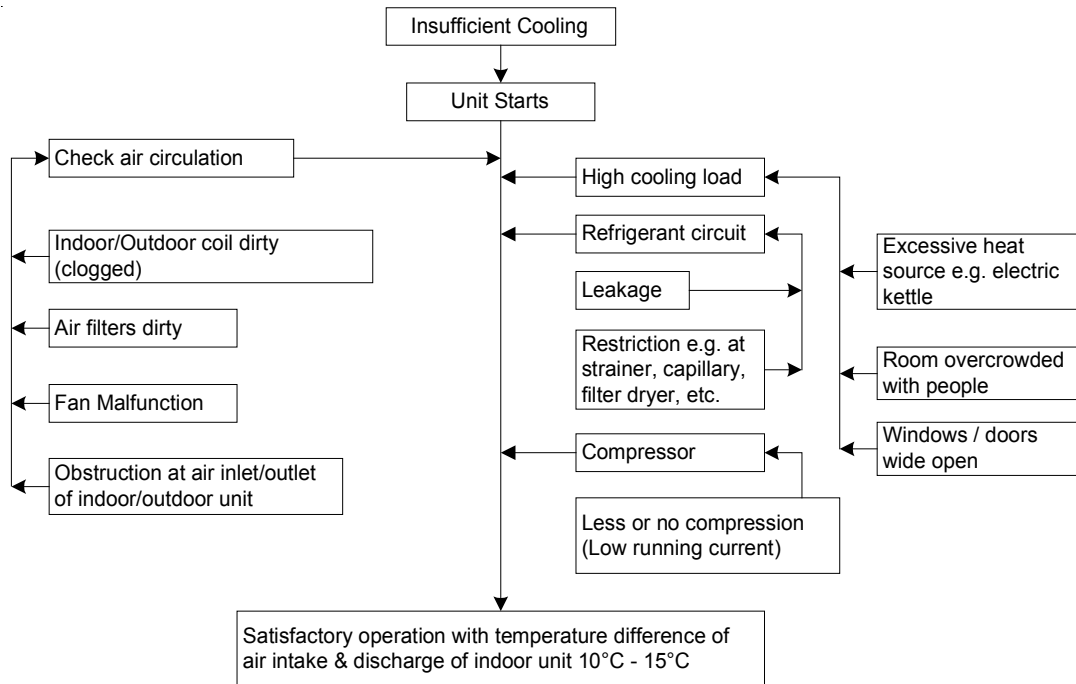


The most common causes of air conditioner failure to “start” are :

- a) Voltage not within +/- 10% of rated voltage.
- b) Power supply interrupted.
- c) Control settings improper
- d) Air Conditioner is disconnected from main power source.
- e) Fuse blown or circuit breaker off.

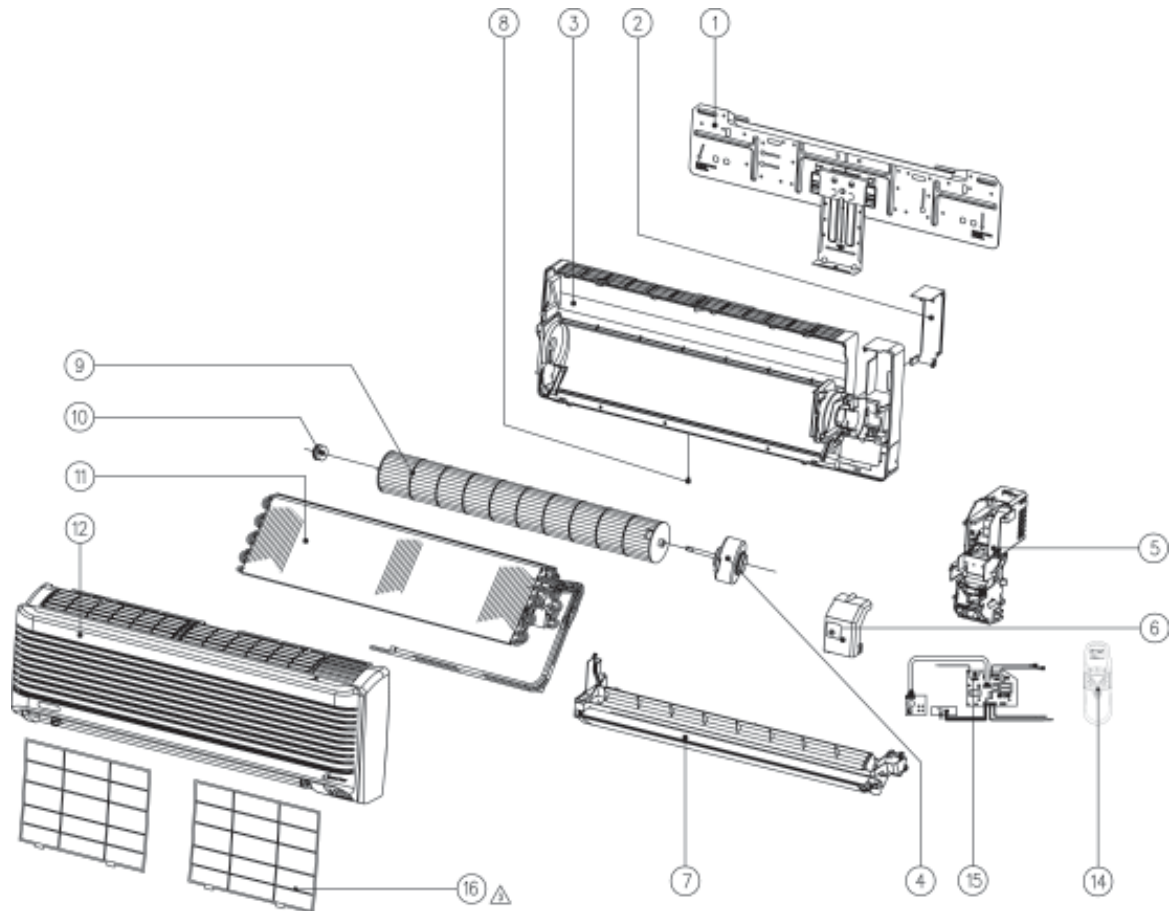
## II) Diagnosis Of Refrigerant Circuit /Application

There might be some cases where the unit starts running but does not perform satisfactory, i.e. insufficient cooling. Judgement could be made by measuring temperature difference of indoor unit's intake and discharge air as well as running current.



# Parts List

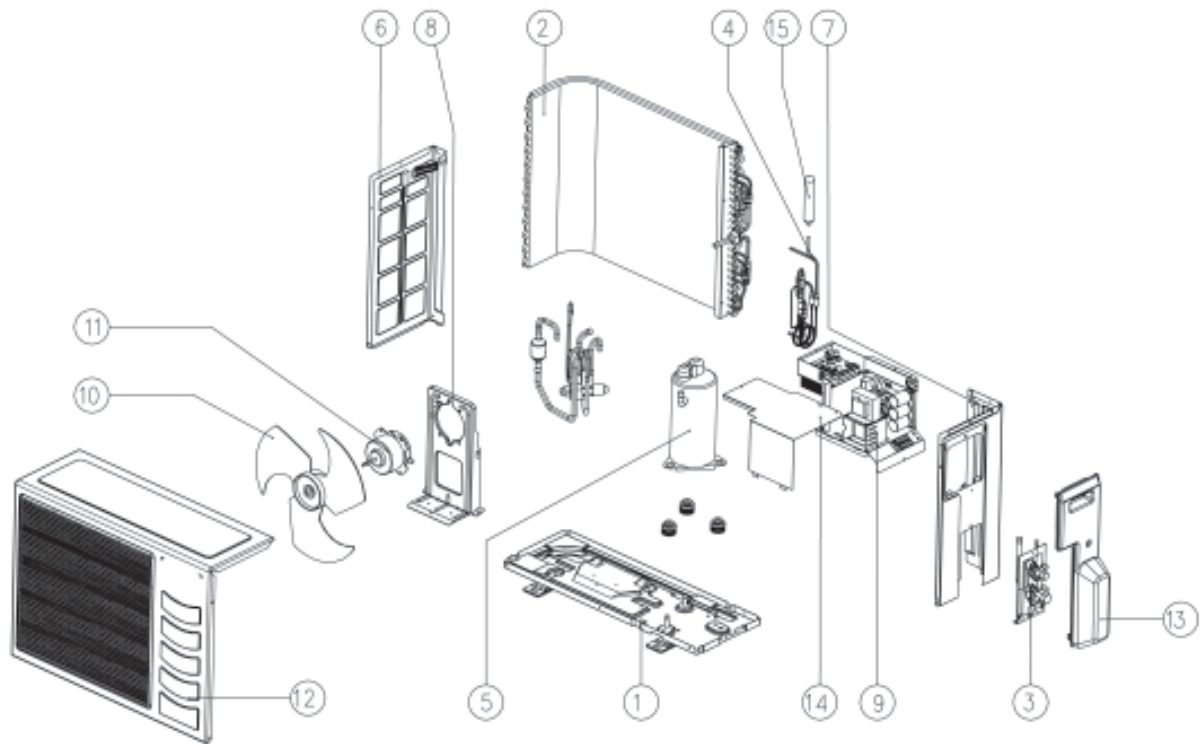
Model : MWMX 010FR / 015FR



1	Assy, Mounting Plate	A50013032957
2	Clamp, Piping 10/15F	A12014048332
3	Assy, Chasis	A50124048326
4	Fan Motor	A03039017867
5	Control Box	
	MWMX 010FR	A50044061964
	MWMX 015FR	A50044061678
6	Control Box Cover	A50124032946
7	Assy, Air Discharge Housing	A50123032954
8	Rivet	A07074049285
9	Crossflow Fan 687.0 x 636.0	A03024032878

10	Fan Bush C/Flow Fan Black	A11014029514
11	Evaporator Coil Assy.	A50024036001
12	Front Cover Assy	A50124061936
14	Handset, wireless G7 HP Turbo (McQuay)	A04084049718
15	CONTROL MODULE	
	MWMX 010FR	A04084061417
	MWMX 015FR	A04084061416
16	Filter Frame	A12013029414
	Titanium Oxide Filter	A03089016310
	3M Ionizer filter	A03089016307

**Model : M5LCX 010 / 015CR**



1	ASSY,PAN BASE SL10/15C	A50014057190
	ASSY,CONDENSER COIL 5SL10/15C/10CR	
2	M5LCX 010CR	A50024065385
	M5LCX 015CR	A50024058635
3	ASSY. VALVE BRACKET	A01014051164
	ASSY. CAPILLARY TUBE	
4	M5LCX 010CR	A50024055287
	M5LCX 015CR	A50024058572
5	ASSY. COMPRESSOR	A04019015856
6	ASSY. PANEL LEFT	A01014051166
7	ASSY. PANEL RIGHT	A01014051167
8	BRACKET, MOTOR	A01014051162

	ASSY. CONTROL BOX	
9	M5LCX 010CR	A50044061024
	M5LCX 015CR	A50044061025
10	FAN	A03019015339
	MOTOR	
11	M5LCX 010CR	A03039016892
	M5LCX 015CR	A03039016893
12	ASSY. FRONT PANEL	A01014051171
13	ASSY. VALVE COVER	A50124051173
14	ASSY. TERMINAL BOX COVER	A01014056885
15	DRIER, FILTER	A02169017980

